

*Sending - ① Amendment & Response - 21
 ② Markup of original CIP 112
 ③ CIP Replacement 84 ④ Drawings 21*

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EVANS, TELEPHONE 703-308-4805, ART UNIT 2877

Response 21 pages, Markup 112 pages

CIP Replacement Application 84 pages

Drawings 21 sheets

Total Fax 238

Our Ref. No. P-1259-981

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:
 OZANICH

Date: October 3, 2003

Serial No. 09/804,613

Group Art Unit: 2877

Filed: March 12, 2001

Examiner: F. L. Evans

For: AN APPARATUS AND METHOD
 FOR MEASURING AND
 CORRELATING CHARACTERISTICS
 OF FRUIT WITH VISIBLE/NEAR
 INFRA-RED SPECTRUM

AMENDMENT AND RESPONSE

Hon. Commissioner of Patents and Trademarks
 Washington, D.C. 20231

Dear Commissioner:

In response to the communication from the Examiner dated June 4, 2003, please
 consider the following:

Petition for Extension for Response Within the First Month-Fees Due

The applicant respectfully observes that this response is filed within the first
 month. The Examiner is hereby authorized to deduct \$55.00 as fees for filing within the
 first month and to deduct other fees owing from the deposit account of Liebler, Ivey &
 Connor, P.S./Floyd E. Ivey, 35,552, Deposit account No. 50-0607.

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1 **I. INTRODUCTORY COMMENTS**

2 **Replacement Application**

3 The Examiner's attention is drawn to prior examination relating to this inventor
4 relative to the parent application and likely relative to the PCT application. The form of
5 the CIP Application, as originally submitted, and the extent of the Examiner's objections
6 and rejections suggest the submission of a Replacement Application as an expeditious
7 means of response. Your applicant submits the following:

8 1.) CIP Replacement Application and

9 2.) a MARKUP of the Original Application showing deletions, by line through,
10 and additions by underlining, which resulted in the proposed CIP REPLACEMENT
11 APPLICATION.

12 **Certification of No New Matter**

13 Pursuant to 37 CFR 1.125, it is certified that no new matter has been added by this
14 submitted replacement application.

15 **Double Patenting Rejection**

16 The Examiner has asserted a double patenting rejection regarding claims 1-7 over
17 U.S. Patent No. 6,512,577B1 to Ozanich. Your applicant hereby timely files a terminal
18 disclaimer in compliance with 37 CFR 1.321(c) and authorizes the Examiner to deduct
19 \$55.00 as fees per 37 CFR 1.20(d) for the terminal disclaimer from the deposit account of
20 Liebler, Ivey & Connor, P.S./Floyd E. Ivey, 35,552, Deposit account No. 50-0607.

21 **Informal Drawings**

22 The applicant notes the PTO-948 regarding informal drawings, submits with this
23 fax response drawings 1 through 8, is having drawings 9 through 15 drafted and will
24 submit formal drawings by mail within the immediate future.

25 **Specification**

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1 The Examiner notes that the brief descriptions of Figs. 1, 1D-1F, 2, 2B, 3, 3A, 3B,
2 4, 5, 5B-D, 6, 6B, 6C, 7, 7C, 8, 9 and 11 are too long. Your applicant has amended the
3 indicated brief descriptions. Your applicant observes that information contained within
4 the objectionable brief descriptions is or may not be otherwise in the Specification. Your
5 applicant has amended the brief descriptions in compliance with the Examiner's
6 Objections. Portions of the brief descriptions have been excerpted and placed within the
7 Detailed Description.

8 The Examiner has set forth other objections to the specification which are
9 responded to by your applicant.

10 **In the Claims**

11 **Objections**

12 The Examiner has objected to the outline form used by your applicant wherein
13 capitalized alpha paragraph outline designations were followed by a period. Your
14 applicant respectfully proposes that the capitalized alpha designations be replaced with
15 small alpha followed by a period. Such is seen in the proposed 1.) CIP Replacement
16 Application and in the 2.) MARKUP.

17 **Amendments to the Claims:** Claims have been amended in response to the
18 Examiner's Objections and Rejections.

19
20 **Examiner's Detailed Action**

21 1. At page 2 of the Examiner's Detailed Action the Examiner requires that the
22 third-seventh sentences, "new matter herein...with claim 22." should be cancelled. The
23 indicated sentences have been cancelled.

24 2. At page 2 of the Examiner's Detailed Action the Examiner observes that an
25 information disclosure statement is not in the file wrapper of the application. The

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1 Examiner is respectfully directed to the Parent Application U.S. Patent No. 6,512,577 and
2 the prior art therein recited and requests the Examiner to now receive an Information
3 Disclosure Statement identifying said prior art as is seen in the indicated Parent
4 Application. The Examiner is requested to withdraw the Objection and to allow the
5 fining of the indicated Information Disclosure statement.

6 3. At page 2 of the Examiner's Detailed Action the Examiner states that the brief
7 descriptions of Figs. 1, 1D-1F, 2, 2B, 3, 3A, 3B, 4, 5, 5B-D, 6, 6B, 6C, 7, 7C, 8, 9, and 11
8 are too long. Correction has been made as is seen in the proposed CIP Replacement
9 Application.

10 4. At page 2 of the Examiner's Detailed Action the examiner states that lines 1-4
11 should be cancelled from page 55. Said lines have been cancelled as is seen in the
12 proposed CIP Replacement Application.

13 5. At page 2 of the Examiner's Detailed Action the Examiner states that the brief
14 descriptions of Figs. 9-15A must not be separated from the brief descriptions of claims 1-
15 8A. The indicated brief descriptions of Figs. 9-15A have been relocated to follow Figs.
16 1-8A.

17 6. At page 2 of the Examiner's Detailed Action the Examiner states that the
18 detailed description on pages 57-67 must not be separated from the detailed description
19 on pages 22-54. The indicated materials have been relocated.

20 7. At page 2 of the Examiner's Detailed Action the Examiner states that the
21 underlining on pages 55-57, 59, 63, 64, 65 and 66 must be deleted. The Examiner's
22 attention is drawn to the underlining as a means of demonstrating section headings. The
23 Examiner will also see that the same underlined headings is found in the PCT application.
24 Your applicant urges the Examiner to withdraw the Objection and to allow the indicated
25 underlining to remain as a means of more distinctly setting specific issues.

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1 8. At page 2 of the Examiner's Detailed Action the Examiner states that the
2 lengthy specification has not been checked to the extent necessary to determine presence
3 of all possible minor errors. Your applicant respectfully notes that the source of the CIP
4 Replacement Application, the PCT Replacement Application, has been the subject of
5 extensive editorial review and that your applicant believes that such minor errors have
6 been detected and eliminated.

7 9. At page 2-3 of the Examiner's Detailed Action the Examiner states the
8 Arrangement of the Specification per 37 CFR 1.77(b). Your applicant respectfully
9 submits that the proposed CIP Replacement Application complies with the indicated
10 format.

11
12 **Objections**

13 10. At page 3 of the Examiner's Detailed Action the Examiner states that the
14 numbering of claims is not in accordance with 37 CFR 1.126. The Examiner states that
15 misnumbered claims 9A-41 have been renumbered 10-64. Your applicant respectfully
16 notes that the MARKUP Replacement Application shows claims 9A-41 cancelled and
17 claims 10-64 added.

18 11. At page 3 of the examiner's Detailed Action the Examiner states that in line 2
19 of claim 11, "is a" is redundant and should be deleted. Claims 9, 25, 26, 30, 31, 33, 36,
20 44, 46-50, 53, 55, 59-61, 63 and 64 include reference characters not enclosed within
21 parentheses. The Examiner will note that the MARKUP Replacement Application shows
22 corrections and that such will be seen in the proposed CIP Replacement Application.

23 12. At page 3 of the Detailed Action the Examiner states that all claims contain a
24 period after each capitalized alphas, that claims 30 and 36 contain multiple sentences.
25 The Capitalized Alphas have been removed, as seen in reference to the proposed CIP
26

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1 Replacement Application. Claims 30 and 36 have been corrected.

2 13. At page 4 of the Detailed Action the Examiner states that claim 50 refers to
3 figures of the drawings. Your applicant has reviewed claim 50 and additionally claims
4 40-60 and has not detected the reference to figures of the drawings.

5
6 Claim Rejections under 35 USC 112

7 14. At page 4 the Examiner rejects claims 1-64 under 35 USC 112 as being
8 indefinite for failing to particularly point out and distinctly claim the subject matter which
9 applicant regards as the invention.

10 The Examiner states that claim 1 is incomplete in that it fails to set forth a
11 connection between the algorithms built and the sample characteristics calculated and that
12 claims 2-6, 24-30, 37-45, 47, 48, 51-57 and 59-64 inherit the problem through
13 dependency. Claim 1 has been amended as seen by reference to the MARKUP and the
14 proposed CIP Replacement Application. The amendment is consistent with the
15 corresponding Claim 1 from U.S. Patent 6,512,577.

16 15. At page 5 of the Detailed Action the Examiner states that the lack of
17 antecedent basis for "the VIS and NIR spectra" line 3 of claim 2; "sampling" line 2
18 claim 6; "the correlation analysis" line 6 claim 6; "the light detector fiber" line 4 claim 7;
19 "the apparatus of claim 7" line 1 claim 9; "the at least one illumination source" line 3
20 claim 9, line 2 claims 12, 19 and bridging lines 2 and 3 claim 20; "the at least one
21 mechanism of measuring the illumination" line 5 claim 9; "the at least one light detector
22 line 7 claim 9 and bridging lines 4 and 5 claim 21; "the plurality of illumination fibers"
23 line 2 claim 14; "the plurality of illumination sources" line 2 claim 16; "the at least one
24 light detector" line 4 claim 16; "the plurality of light detectors" line 2 claims 17 and 18;
25 "the plurality of illumination fibers" line 3 claim 19; "the polarization filter" line 2 claim

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1 22 and "the matching polarization filter" bridging lines 2 and 3 claim 22 render these
2 claims and dependent claims indefinite. Said claims, with the exception of the following
3 comments, have been amended to provide antecedent basis as seen in the MARKUP and
4 the proposed CIP Replacement Application.

5 Re: claim 2 - the claim has been amended to read "...relates the a VIS and NIR
6 spectra ..." thereby providing antecedent basis.

7 Re: claim 6 - the claim has been amended to read "...sampling is of samples from
8 the..." and "...building algorithms for the a correlation analysis ..." thereby providing
9 antecedent basis.

10 Re: claim 7 - the claim has been amended to read "...detecting the spectrum of
11 absorbed and scattered light from the sample with at least one light detector; the at least
12 one light detector comprising at least one light detector fiber; shielding the at least one
13 light detector fiber..." thereby providing antecedent basis.

14 Re: claim 9 - Your applicant has amended claim 9 to depend from claim 8. Your
15 applicant has amended claim 9 to state "...the at least one illumination light source".

16 Re: claim 12 - Claim 12 has been amended to read "...a the at least one light
17 illumination source is at least one an-illumination fiber..." thereby providing antecedent basis.

18 Claim 19 has been amended to state "...the at least one illumination light source
19 comprised of an ellipsoidal reflector with having a 50 w bulb with cooling fan; the at least one
20 illumination light source is a the plurality of illumination fibers is comprised ..." thereby
21 providing antecedent basis.

22 Re: claim 20 - claim 20 has been amended to read "...the at least one illumination
23 light source is a 5 w tungsten halogen lamp; the at least one light detector is a single fiber optic
24 fiber; the illuminationlight source is..." thereby providing antecedent basis.

25 2nd re: claim 9 - the Examiner has noted "the at least one mechanism of measuring
26

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1 the illumination" line 5 claim 9. The amendment of claim 9 to depend from claim 8
2 provides the needed antecedent basis.

3 3rd re: claim 9 and claim 21 - the Examiner notes "the at least one light detector"
4 line 7 claim 9 and lines 4-5 claim 21; the amendment for claim 9 to depend from claim 8
5 provides antecedent basis.

6 Re: claim 14 - Your applicant has amended claim 14 to state "...the at least one
7 light detector is a the plurality of illumination fibers are comprised of 32 illumination fibers."
8 which you applicant believes to provide antecedent basis.

9 Re: claim 16, your applicant has amended claim 16 to state "...the at least one
10 illumination light source is -the- a plurality of illumination sources is comprised of two 50 w
11 light sources; which you applicant believes provides antecedent basis.

12 Re: claim 17, your applicant has amended claim 17 to state "...the at least one
13 illumination light source is a the plurality of light detectors are arrayed such..." thereby
14 providing antecedent basis.

15 Re: claim 18, your applicant has amended claim 18 to state "...the at least one light
16 detector is a the plurality of light detectors comprising twenty-two..." thereby providing
17 antecedent basis.

18 Re: claim 19, your applicant has amended claim 19 to state "...the at least one
19 illumination source is a the plurality of illumination fibers is comprised of at least ..." thereby
20 providing antecedent basis.

21 Re: claim 22, your applicant has amended claim 22 to depend from claim 21
22 thereby providing antecedent basis.

23 The Examiner's attention is drawn to the uniform amendment of claims to assert
24 "light source" rather than "illumination source" in claims 11, 12, 13, 15, 16, 17, 19, 20
25 and 21.

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1 16. At page 5 the Examiner states that Claims 8 and 23 are directed to an
2 apparatus for performing the method of claim 1 noting that the claims fail to set forth
3 means/structure for building algorithms and calculating the characteristics of a sample
4 and that the claims that depend from claims 8 and 23 inherit the problems of the
5 independent claims.

6 Claim 8 has been amended in the preamble to state "An apparatus to predict
7 characteristics of a sample comprising:" thereby eliminating the required means/structure
8 for building and calculating characteristics of a sample.

9 Re: claim 23, the preamble has been amended to state "An apparatus to predict
10 characteristics of a sample comprising:" thereby eliminating the required means/structure
11 for building and calculating characteristics of a sample.

12 17. At page 5 the Examiner states that Claim 9 preamble sets forth an apparatus
13 and depends from claim 7 which is directed to a method. Claim 9 has been amended to
14 depend from claim 8.

15 18. At page 5 the Examiner states that claim 11 and dependent claims appear
16 incomplete in that claim 10 does not end with a period. Claim 10 has been amended to
17 end with a period.

18 19. At page 5-6, the Examiner states that claim 13 contradicts claim 11. Claim
19 13 has been amended to depend from claim 8 thereby eliminating the contradiction.

20 20. At page 6 the Examiner states that claim 15 contradicts claim 12 in that claim
21 12 specifies at least one illumination source as an illumination fiber while claim 15
22 specifies the illumination source as a 5w tungsten halogen lamp. Claim 15 has been
23 amended to depend from claim 9 thereby eliminating the contradiction. Claim 15 has
24 been amended to state "...the at least one illumination light source is a 5w tungsten halogen
25 ..."

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21. Amendments or claims as presented have rendered claim 16, depending from claim 12, contradictory to claim 12. Claim 16 has been amended to depend from claim 9.

22. At page 6 the Examiner states that claim 19 contradicts claim 12. Claim 19 has been amended to depend from claim 11 thereby eliminating the contradiction.

23. At page 6 the Examiner states that in claim 8, the phrase "such as" renders the claim indefinite. Your applicant does not find "such as" in claim 8 but does find the phrase in claim 9. Claim 9 has been amended to state "...determination of indexes ~~such as~~ of eating quality..." thereby eliminating the phrase.

24. At page 6 the Examiner states that the phrase "for example" and "e.g." in claims 9, 30, 36, 43, 50, 54, 55, 59 and 63 render the claims indefinite. The phrase "for example" has been stricken from claims 30, 36 and 50.

The phrase "e.g." has been stricken from claims as follows:

Claim 9 amended as follows "... preprocessing or preprocess (175), ~~e.g. by~~ smoothing or box car smooth or calculate derivatives, precedes 4) the prediction or predict (176), for each at least one spectrometer output channel, comparing the preprocessed combined spectra (175) with at least one stored calibration spectrum or at least one calibration algorithm(s) (177) for each sample characteristic 1...x (178), ~~e.g. comprising~~ brix, firmness, acidity, density, pH, color and external and internal defects and disorders, for which the sample is examined, followed by 5) decisions or further combinations and comparisons of the results of quantification of each characteristic, 1...x, ~~e.g. comprising~~ determination ...";

Claim 43 amended as follows "...which is linear with concentration (e.g., percent Brix or acidity or pounds of firmness, etc.)..."

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1 Claim 54 amended as follows "...sorter to provide data, e.g., from camera or CCD
2 images; 3) utilizing other ...".

3
4 Claim 55 amended as follows "...amount of light, e.g., by varying an aperture
5 (310) size, to provide an improved signal-to-noise ratio spectrum for large
6 samples (30) and/or to prevent detector (80) saturation by light for small product
7 sample (30), e.g., detector (80) exposure or integration time can be set for longer
8 time periods for large product samples (30) and for shorter time periods for small
9 product...".

10
11 Claim 59 amended as follows "...light collection(s) detectors, e.g., light detectors (80),
12 leading to the spectrometer(s) (170)..."

13
14 Claim 63 amended as follows "...Resultant Score plots from PCA (e.g., Score 1
15 vs. Score 2, Score 3 vs. Score 4, etc.); selecting a subset of the original samples
16 (e.g., 40% of the original number of samples) from the Score plots ...".

17
18 25. At page 6 the Examiner states that the phrase "those of ordinary skill in the
19 art" must be deleted from claim 50. The phrase has been deleted.

20 26. At page 6 the Examiner states that the phrases "common to the art" and
21 "common to other industries" in Claim 54 must be deleted. The phrases have been
22 deleted by amendment as follows: "...mass sensors common to the industry; 2) utilizing a
23 color sorter or defect sorter to provide data, e.g., from camera or CCD images; 3) utilizing
24 other size sensors based on magnetic, inductive, light reflectance or multiple light beam
25 curtains, common to other industries. "
26

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1 27. At page 6 the Examiner generally states that method claims must be set forth
2 in active steps, in operative sequence for an end result where the structure is organized
3 and correlated in such a manner as to present a complete operative device. The Examiner
4 does not identify the claims pertinent to this statement. Your applicant has reviewed
5 method claims and has made the following amendments:

6
7 Claim 25 has been amended to read: "...measurement; providing presence sensing
8 means and position sensing means having outputs to a computer program controlled
9 CPU; determining with the computer program controlled CPU determining if the
10 sample 30 being measured is at the optimal location(s) for spectrum measurement;
11 determining with the computer program controlled CPU determining if a sample is
12 present...".

13
14 Claim 26 has been amended to "a. providing presence sensing means is a proximity
15 sensing means for presence sensing means."

16
17 Claim 27 has been amended to "...a. providing for position sensing means is an
18 encoder or pulse generator (330)..."

19
20 Claim 30 has been amended to "...a. using a collimating lens 78 and or other light
21 transmission means including for example fiber-optics to transfer the light that has
22 interacted with the sample 30 to the spectrometer(s) 170 detectors 200 to achieve
23 light source lamp light collection achieved using a collimating lens 78 and or other light
24 transmission means including for example fiber-optics to transfer the light that has
25 interacted with the sample 30 to the spectrometer(s) 170 detectors 200; making, if no

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1 sample 30 is present, other reference measurements are made to improve stability and
2 accuracy such as including previously mentioned dark spectra, reference spectra (lamp
3 intensity and color output), and standard/calibration samples, which may be optical
4 filters or polymers or organic material with known and repeatable spectral
5 characteristics. ~~At measurements where such measurements include that are made~~
6 when no sample is present include, but are not limited to 1) measuring a reference
7 spectrum (intensity vs. wavelength) of the light source(s), 2) measuring the dark current
8 (no light conditions) of one or more spectrometer(s) 170 detector(s) 200, including but
9 not limited to the sample spectrometer(s) 170 and the reference spectrometer(s) 170, and
10 3) standard or calibration samples or filters 130 or material.

11
12 Your applicant has examined other method claims and respectfully submits that
13 other method claims are in proper form.

14
15 **Claim Rejections Under 35 USC 102**

16 **Strobl et al:** The Examiner has rejected claims 1, 4 and 8 under 35 U.S.C. 102(b)
17 as being anticipated by Strobl et al, Patent No. 5303026. The Examiner is respectfully
18 directed to differences between Strobl et al and your applicants disclosure and claims as
19 follows:

20 1) Your applicant's invention does not use a wavelength tunable light source but
21 rather specifies and claims a broadband light source, e.g., see CIP Replacement
22 Application page 14/line 20; page 25/line 28; page 26/line 2; page 27/line 18;
23 page 27/line 22; page 29/line 23; page 52/lines 23, 25. Claims have been
24 amended as follows: claim 1 has been amended to state "B[.] illuminating the
25 interior of a sample with a broadband frequency spectrum;"; claim 8 has been

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1 amended as follows: "A[.] at least one broadband light source;..."; claim 23 has
2 been amended as follows: "...a. at least one broadband light source...". It is
3 respectfully submitted that Strobl et al, Lines 45-50 in column 5, describe an
4 apparatus for performing fluorescence analysis that uses a tunable light source.
5 While the wavelength range is similar (250-1100nm), that is only because that is
6 the range of wavelengths that are commonly measured by well-known silicon
7 photo-detectors. Your applicant does not use a pulsed light source, or a tunable
8 light source, and would not, for example, use a Xenon light source.

9
10
11 2) Strobl is practicing fluorescence spectroscopy. Your applicant is practicing
12 diffuse transmission spectroscopy or absorption spectroscopy. Strobl's use of
13 spectroscopy is primarily that of luminescence or fluorescence spectroscopy,
14 which uses "... plots of intensity as a function of wavelength of collected emitted
15 and scattered light versus wavelength of excitation light." Your applicant is
16 analyzing plots of intensity as a function of wavelength of collected transmitted
17 and scattered light, i.e., your applicant is practicing transmission spectroscopy.
18 Your applicant does not analyze versus wavelength of excitation light, as does
19 luminescence or fluorescence. It is submitted that Strobl et al, column 3/lines 16-
20 20 are describing fluorescence analysis, not absorption.

21
22
23 3) It is your applicant's disclosure to illuminate a large volume of tissue to obtain
24 a representative measurement of the entire sample, particularly in the case of
25 whole fruit and vegetables, e.g., at your applicant's specification page 39/line 20,
26

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1 28; page 54/line 18; page 55/line 6; page 61/line 3, 9; page 62/line 26; page
2 63/line 7, 12; page 64/line 13; claim 64. Strobl et al in contrast seeks to direct the
3 light into a small volume of the biological tissue as seen in claim 1 subpart b.

4 Your applicant notes that the Examiner directs in particular to Strobl et al at three
5 specific cites within the patent: Strobl et al, column 3, lines 16-20 states "Accordingly, it
6 is an object of the present invention to provide an apparatus and method for real-time
7 fluorescence analysis of tissue at multiple excitation wave-lengths with a simultaneous
8 measure of the absorption and scattering as a function of wavelength."; Strobl et al column
9 5, lines 45-50 states "...In general, it would be desirable for light sources to be tunable
10 from 250 nm to 1100 nm with an adjustable bandwidth of 1-20 nm, optimized for
11 efficient fiber coupling and fast scanning (up to 1000 different excitation
12 wavelengths/sec)....". It is respectfully submitted that said differences distinguish your
13 applicant's invention from that of Strobl et al. Your applicant has amended claims. Your
14 applicant respectfully requests the Examiner to withdraw the rejections under 35 U.S.C.
15 102(b).

16
17 Jung et al: The Examiner has rejected claims 1, 4, 5 and 8 under 35 U.S.C.
18 102(e) as being clearly anticipated by Jung et al, Patent No. 5926262. The Examiner
19 directs particular attention to Jung et al column 35/lines 22-67, column 36 lines 1-21 and
20 column 37 lines 38-49. It is respectfully noted that Jung discusses the optical
21 measurement of objects having an internal opaque layer and an outer translucent
22 layer. It is observed that such is not the case with whole fruit and vegetables, which
23 have a skin which is just as opaque, if not more opaque, than the underlying tissue,
24 e.g., oranges.

25 It is noted that Jung et al is illuminating a surface and detecting the light

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1 reflected from that surface, e.g., claims 1-6 for data re: the optical characteristics of
2 surface color, translucence, fluorescence, surface texture and gloss; claims 7-15 for
3 data re: the group consisting of reflected surface color spectrum, bulk material color
4 spectrum, gloss, translucency, fluorescence, and surface texture; claims 16-30. Your
5 applicant is solely interested in the internally scattered and re-emitted light, e.g.,
6 claim 1 "B. illuminating the interior of a sample with a frequency spectrum; C.
7 detecting the spectrum of absorbed and scattered light from the sample;": for your
8 applicant's invention, reflected light is avoided by design including the placement of
9 light sources relative to light collection fibers and use of devices; including a
10 collimation lens, to minimize collection of off-axis light rays primarily due to surface
11 reflection.

12 These references to Jung et al also discusses the design of a reflectance fiber
13 optic probe where the goal of Jung et al is to selectively measure surface reflected
14 light separate from internally scattered and re-emitted light. Again, your applicant
15 is solely interested in the internally scattered and re-emitted light and avoids
16 reflected light.

17 In Jung's examples the object reflects light at the junction separating outer layer
18 from inner layer. Such is not the case with whole fruit and vegetables, which diffusely
19 scatter light at all depths. Your applicant is specifically interested in collecting light from
20 a large area at all depths to provide a measurement that is representative of the whole fruit
21 or vegetable.

22 Jung lines 38-49 in Column 37 propose the use of their reflectance fiber optic
23 probe for measurement of color of fruit and vegetables. They indicate that color may
24 indicate ripeness. However, your applicant knows that color alone is not a good indicator
25 of ripeness or sweetness or eating quality. Your applicants invention combines the

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1 visible (color) region with the near-infrared region to predict fundamental properties such
2 as firmness, sugar content, acid content and internal color and external color - all of
3 which can be combined to generate a measure of maturity or eating quality. An important
4 distinction is that your applicant is relating the absorbance spectra of the fundamental
5 pigments (chlorophyll, anthocyanin or lycopene, other carotenoids or xanthophylls) to
6 eating quality. Relating the absorbance spectra of these colored molecules to maturity or
7 quality parameters is not the same as relating the reflected color to sample attributes. For
8 one, your applicant is penetrating deep into whole fruit and measuring chlorophyll present
9 in the tissue, not just on the surface. Also your applicant is using multivariate statistical
10 correlation techniques to relate the visible/near-infrared spectrum to properties such as
11 sugar content and combined properties resulting in the ability to measure maturity or
12 quality. Jung uses CIE or other very different techniques (not multivariate statistics) to
13 measure color.

14 Law regarding 35 USC 102.

15 A rejection for anticipation under section 102 requires that each and every
16 limitation of the claimed invention be disclosed in a single prior art reference. (*In Re*
17 *Paulsen*, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994); For a prior art
18 reference to anticipate in terms of 35 U.S.C. S 102, every element of the claimed
19 invention must be identically shown in a single reference. The elements must be arranged
20 as in the claim under review. (*In Re Bond*, 910 F.2d 831, 832, 15 USPQ2d 1566, 1567
21 (Fed. Cir. 1990). Prior art anticipates an invention ... if a single prior art reference
22 contains each and every element of the patent at issue, operating in the same fashion to
23 perform the identical function as the patented product. "Thus, any degree of physical
24 difference between the patented product and the prior art, NO MATTER HOW SLIGHT,
25 defeats the claim of anticipation." (*American Permahedge, Inc. v. Barcana, Inc.*, 857 F.

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1 Supp. 308, 32 USPQ2d 1801, 1807-08 (S.D. N.Y. 1994); It is incumbent upon the
2 examiner to identify wherein each and every facet of the claimed invention is disclosed in
3 the applied reference. (*Ex Parte Levy*, 17 USPQ2d 1461, 1462 (Bd. Pat. App. & Int'l
4 1990)).

5 The applicant has demonstrated differences between features of the referenced
6 prior art and the present invention as specified and claimed. The applicant has presented
7 features of the present invention which are not found within the claims of either reference
8 patent. The applicant has presented law and argument to support the contention that the
9 rejection of claims 1 - 21, under 35 USC 102 should be withdrawn and now respectfully
10 requests the Examiner to withdraw the rejections.

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1 **II. AMENDMENTS TO THE SPECIFICATION**

2 See the foregoing Remarks and the 1.) proposed CIP Replacement Application
3 and 2.) the MARKUP APPLICATION.

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1 III. AMENDMENTS TO THE CLAIMS

2 See the above Remarks and the 1.) proposed CIP Replacement Application and
3 the 2.) MARKUP ORIGINAL APPLICATION.

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IV. SUMMARY OF AMENDMENTS AND REMARKS

The applicant has reviewed the Examiner's Action of June 4, 2003, and has addressed all objections and rejections disclosed therein. Your applicant has submitted a MARKUP Original Application and a proposed CIP Replacement Application. Accordingly, the applicant has made a good faith attempt to meet each objection and/or rejection as noted by the Examiner. The applicant has amended the specification and claims. Accordingly your applicant requests the Examiner to withdraw the said objections and rejections and to allow the specification and claims as set forth and as amended.

The applicant has filed a terminal disclaimer in compliance with 37 CFR 1.321(c) and has authorized the Examiner to withdraw funds per 37 CFR 1.20(d) in the amount of \$55.00 as the applicant is a small entity.

Respectfully submitted,

FLOYD E. IVEY
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Telephone No. (509) 735-3581

CERTIFICATE OF TRANSMISSION:

The undersigned hereby certifies that this correspondence is being facsimile transmitted to Examiner F. L. EVANS, Telephone 703-308-4805, ART UNIT 2877 at the Patent and Trademark Office Fax No. (703) 872-9318 on October 3, 2003.

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